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Author(s): Terry Reynolds

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"Destined to produce [a] . . . revolution": Michigan's Iron Ore Industry in the Civil War

by
Terry Reynolds

> These ores seem destined to produce an entire revolution in the iron trade of this country… ("Iron Ores of Lake Superior," *Chicago Tribune,* Feb. 23, 1864)

> The records of our industrial pursuits exhibit probably no such example of the rapid development of any industry, as… the progress of iron ore mining in Michigan. (*Bulletin of the American Iron & Steel Association*, 2, Dec. 11, 1867)

Three times in 1860, miners in the recently opened iron ore pits of Michigan's Upper Peninsula went on strike. Their actions, largely peaceful, attracted no attention outside of the immediate region. Local mine agents quickly and quietly settled the conflicts without external interference, either by discharging the striking miners or by agreeing to small wage increases.[1] In 1864 and 1865 the story was different. In June 1864 and in July 1865, Michigan's iron miners struck again. In both cases the strikes turned vicious, with strikers threatening not only the mines but the port city of Marquette, 12 to 15 miles distant, where agents of the iron mining companies had their offices. In both cases the threat of violence led to the dispatch of federal troops and a federal gunboat, the *U.S.S. Michigan*, to restore order and to protect property.[2]

The contrast between the pre-Civil War strikes of 1860 and those of 1864 and 1865 illustrate in a nutshell the Civil War's impact on Michigan's nascent iron ore industry. Before the war, the industry's limited importance meant events at the iron mines attracted little

[1] F. P. Mills to H. B. Tuttle, March 3, 1860, "Agency at Marquette, Letters, 1860," Item 2724, MS 86-100, Cleveland-Cliffs Iron Company Collections, Archives of Michigan, Northern Michigan University repository, Marquette, Michigan (hereafter CCI); R. Nelson to Tuttle, March 12 and May 13, 1860, ibid.; Peter White to Tuttle, March 12, 1860, "Letters, T-Z, 1860," ibid.; and Tuttle to Samuel L. Mather, July 5, 1860, "H. B. Tuttle's Letters, 1860," ibid.

[2] See notes 87 and 93 for documentation of the 1864 and 1865 strikes.

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attention outside the region. By the end of the war, however, the industry had achieved sufficient importance to merit the dispatch of naval vessels and troops to keep the mines in operation. The Civil War provided the stimulus needed to transition Michigan's iron ore industry from marginality to importance. It affected Michigan's iron mining region in at least five major ways. First and foremost, wartime demand for Michigan ores accelerated ore and charcoal iron production in existing mines and furnaces and prompted the emergence of new mining and furnace ventures. Second, wartime demand increased the ties between the ore producing companies operating in the Upper Peninsula and blast furnace operators in western Pennsylvania and eastern Ohio—soon to be the heart of the American iron and steel industry. These ties included not only extended commercial ties but also improved transportation links. Third, the war accelerated investment in Michigan mines. Fourth, the growing scale of ore production led to the first tentative moves toward mechanization in Michigan's iron mines. Fifth, and finally, the war's production pressures exacerbated labor shortages and dramatically increased the scale of the region's labor problems.[3]

Michigan's Iron Region in 1860

Michigan's ante-bellum iron ore industry was small, consisting of only three mines opened between 1847 and 1858. The mines, located in the "Siberia of Michigan," as the Upper Peninsula was sometimes called, had only tenuous connections to the mainstream of American commerce and industry.[4] A single-track railroad, completed in 1858, linked the mines to the small port town of Marquette, described as "a lonesome and forlorn looking place" by an 1858 immigrant. Its population was around 500. Ishpeming, site of two of the mines and not yet formally named, could scarcely be called a "settlement," with no

[3] The only previous account of the impact of the Civil War on Michigan's iron ore district is a very short booklet by Lewis Beeson and Victor E. Lemmer, *The Effects of the Civil War on Mining in Michigan* (Lansing, MI: Michigan Civil War Centennial Observance Commission, 1966). The booklet is completely dependent on secondary sources; it focuses primarily on copper mining, with only a few pages devoted to iron, and tells the reader little beyond the fact that iron ore production increased during the war.

[4] Examples of the use of "Siberia" to describe the Upper Peninsula are John W. Barber and Henry Howe, *All the Western States and Territories, From the Alleghanies to the Pacific*… (Cincinnati: Howe's Subscription Book Concern, 1867), 255 and John T. Blois, *Gazetteer of the State of Michigan*… (Detroit: Sydney L. Rood & Co., 1838), 18.

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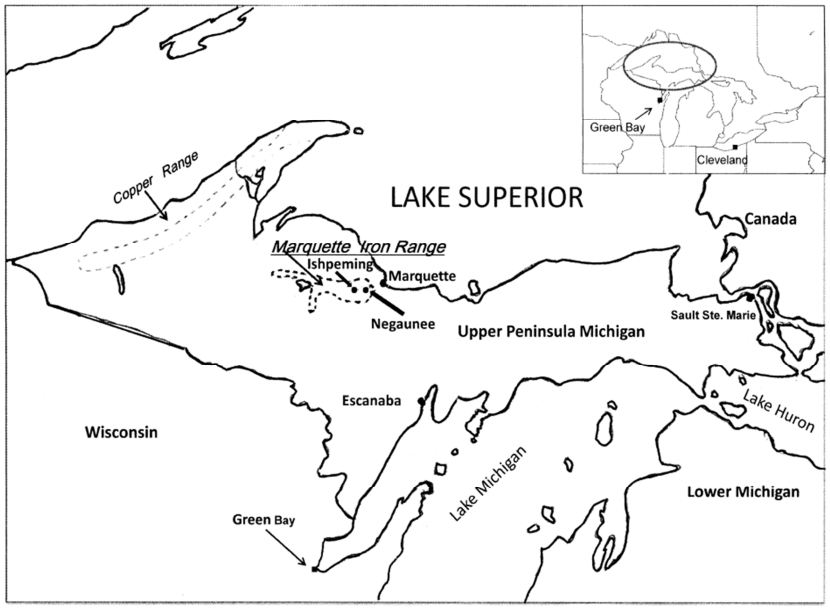

Image 1: Map of the Upper Peninsula of Michigan showing the location of the Marquette iron ore range. The leading Civil War era mines were located near Negaunee and Ishpeming, around 12-15 miles inland from the port city of Marquette.

Source: Author's creation

streets, just paths between the few scattered cabins located near the mines.[5]

The three mines exported most of their product to blast furnaces located over 500 miles away, most on or near the shores of Lake Erie. Those furnaces converted the ore to pig iron, which could be used to cast objects such as pipes and pots or be used as an intermediate in the eventual production of wrought (malleable) iron or steel. The mines often sold their leaner ores (ores containing 50% to 55% iron compared to "rich ores" of 60% iron or more) to one of several local charcoal-fueled blast furnaces, which converted the ore to pig iron before

[5] Joanna Boven interview, Oct. 17, 1921 [arrived in Marquette in 1858]; Peter J. Dunn interview, March 1921 [arrived in Ishpeming in 1863] in L. A. Chase Interviews, Marquette Regional History Center, Marquette, MI (hereafter MRHC).

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exporting it southward. In 1860 the Upper Peninsula's three iron mines employed 170 men. Total investment was only $550,000.[6]

In 1860 not even a wagon road—much less a rail-road—linked the mines to the remainder of the country. The completion of a canal at Sault Ste. Marie in 1855 had created a water link, but winter closed it down. A winter trip overland to Chicago required up to 10 days and was fraught with danger.[7] Travelers first had to trek south through woods and swamp to Bay du Nocquet (Bay du Noc) on Lake Michigan, over 60 miles away. Then—because northern Lake Michigan froze over in winter—they used an ice road to cross to Green Bay, Wisconsin, from which stage links to the remainder of the country were available. When C. T. Harvey made the trip in the early 1860s, his horse became so mired in a swamp that he had to leave him and wade through water up to his waist to get help.[8] Amos Harlow of Marquette made the trip in February 1864. The trail was so poorly marked and the weather so harsh (-25 F, snowing, and blowing) that he drifted off course. He almost lost an ear from frostbite and later confided to his daughter, "I hope I may not be obliged to travel over that ice again."[9]

The local railroad and the canal at Sault Ste. Marie had made it possible by 1860 to get ore economically from Lake Superior to furnaces near the lower Lakes, but when the Civil War broke out, that ore had only recently gained grudging acceptance from a handful of furnacemen on the lower Great Lakes. To most "practical metallurgists," Lake Superior ore remained a "curiosity."[10] Michigan's mines had "not yet been really brought into relation with the [national] iron market," partially because of problems using the rich new ores, partially because of the tradition of furnaces relying on local supplies, and partially because there was no real need for most furnace operators to move

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[6] *Manufactures of the United States in 1860, compiled from the Original Returns of the Eighth Census*… (Washington, DC: GPO, 1865), 267. clxxvii.

[7] For the travel time, see Benjamin E. Buckman, *Samuel J. Tilden Unmasked!* (New York: by the author, 1876), 30-31.

[8] C. T. Harvey to Wm. Pearsall, April 29, 1861, Folder 38, Letters & Papers of C. T. Harvey 1857-1868, Pioneer Iron Co. Papers, in Longyear Papers, MRHC.

[9] Amos R. Harlow to daughter, February 22, 1864, Harlow Family Papers, 1836-50, Bentley Historical Library, Ann Arbor, MI.

[10] Robert H. Lamborn, "Development of Iron Industry in the Northwest," *American Mining Gazette* 2 (November 1865): 644; J. W. Foster, *The Geology and Metallurgy of the Iron Ores of Lake Superior: Being a Report Addressed to the Board of Directors of the Iron Cliffs Company* (New York: Wm. C. Bryant & Co., 1865), 92; Samuel H. Daddow and Benjamin Bannan, *Coal, Iron, and Oil; or, the Practical American Miner*… (Pottsville, PA: Benjamin Bannan, 1866), 548.

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beyond these local supplies.[11] Early tests mixing the hard, rich, pure Marquette range ores of Michigan with the leaner local ores of western Pennsylvania had failed. Up until August 1856, according to one furnace manager, Michigan iron ore "was not a success."[12] Most furnaces had not been designed for rich ores like those of Michigan. Neither were furnacemen used to importing ore from hundreds of miles away. Traditionally they had drawn entirely on local deposits. Pittsburgh furnace owners, for instance, did not like dealing with the vessel owners who shipped the ores from Lake Superior, since the furnace owners knew little about that part of the business.[13] Nonetheless, a few furnaces in Ohio and Pennsylvania had begun to use the ore in a mix with lean local ores to improve yield, but as late as 1862 some furnaces still had trouble with Michigan ore.[14]

Under these circumstances, none of the three companies mining Michigan iron ore had made a profit before the war. The Jackson Iron Company, the oldest, had a record "of disappointment and financial embarrassment."[15] The Lake Superior Iron Company had steadily increased production in the late 1850s but was in much the same boat. It had "only succeeded in making ends meet and keeping even."[16] The Cleveland Iron Mining Company had paid off most debts by 1860, but it

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[11] Henry R. Mussey, *Combination in the Mining Industry: A Study of Concentration in Lake Superior Iron Ore Production* (New York: Columbia University, 1905), 55.

[12] James M. Swank, *History of the Manufacture of Iron in All Ages* (Philadelphia: by the author, 1884), 250, quoting Frank Allen, manager of the Clay furnace of the Sharon Iron Company. Charles Trowbridge of the Collins Iron Co. noted that the first pig was made on Lake Superior by Stephen R. Gay [1858], and that previous to that time "many experiments had been made in Pennsylvania to make pig Iron from Lake Superior ore *alone,* but without success," it being generally believed that the iron ore was "too rich, or contained too much metallic Iron to be run into pig." See Marquette Iron Co., *Prospectus for the Organization of the Marquette Iron Co. of Lake Superior, Michigan* (New York: L. H. Biglow, 1864), 13.

[13] H. B. Tuttle to Samuel L. Mather, March 7, 1860, "Letters T-Z, 1860," Item 2724, CCI.

[14] "The Mineral Riches of the Lake Superior Region," *Scientific American* ns 8 (January 10, 1863): 20.

[15] T. B. Brooks, et al., *Geological Survey of Michigan: Upper Peninsula, 1869-1873* (New York: Julius Bien, 1873), 19; J. H. Kennedy, "The Opening of the Lake Superior Iron Ore Region," *Magazine of Western History* 2 (1885): 349. See also David Landon, et al., "… A Monument to Misguided Enterprise: The Carp River Bloomery Iron Forge," *IA: Journal of the Society for Industrial Archeology* 27.2 (2001): 5-22.

[16] Peter White, "Stories of the Past," read at semi-centennial celebration of the Lake Superior Iron Co., June 27, 1903, Peter White manuscripts, MRHC.

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had yet to pay a dividend.[17] Michigan's iron mines were of so little importance on the national scene that J. Oleander Bishop's two-volume history of American manufactures from 1608 to 1860 made no mention of them.[18] Michigan's iron ore mines set a record for production and export in 1860, but their output still amounted to only around three to four percent of the nation's total.[19]

Early Upper Peninsula blast furnace companies had a similar story. The Clinton Iron Company and the Forest Iron Company, both organized in 1855, had gone out of business by 1860.[20] The Pioneer Iron Company, which had erected the first operative blast furnace in the region in 1858, was on verge of bankruptcy by 1860, selling for $22 per ton pig iron that cost $24 to produce.[21]

Outbreak of the War

The protracted crisis precipitated by South Carolina's secession in December 1860 initially had little impact on Michigan's promising, but still struggling, iron ore industry. The region's isolation provided a buffer. Henry R. Mather, a small-time businessman in Marquette, the "metropolis" of the iron region, commented in May 1861, "we are so far away, that but little emotion is seen. With the exception of a tremendous rush for papers on the arrival of every boat, but little is done."[22] Residents sometimes treated the region's isolation humorously. On November 1, 1861, Henry wrote to his brother Samuel in Cleveland, "We have heard nothing from below now for six or seven days & we are

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[17] H. B. Tuttle to Samuel L. Mather, June 15, 1860, "H. B. Tuttle's Letters, 1860," item 2724, CCI; Terry S. Reynolds and Virginia P. Dawson, *Iron Will: Cleveland-Cliffs and the Mining of Iron Ore, 1847-2006* (Detroit: Wayne State University Press, 2011), 35.

[18] J. Leader Bishop, *A History of American Manufactures, from 1608 to 1860*… (Philadelphia: Edward Young & Co., 1864). A Cleveland writer commented in May 1862 that "few people [were] aware" of the region's iron resources (J. S. Sargent, "Lake Superior Iron Mines," *Scientific American* ns 6 (May 10, 1862): 294). Indeed, even as late as 1864 the *Chicago Tribune* would comment that "the magnitude of the iron trade of Marquette county is little comprehended by the majority of … Chicago readers" (J. M., "The Lake Superior Region," *Chicago Tribune*, August 3, 1864).

[19] The four percent is my calculation from data in *Manufactures of the United States in 1860,* clxxvii; the three percent is from George J. Miller, "Geographic Influences of the Lake Superior Iron Ores," *Bulletin of the American Geographic Society* 46 (1914): 904.

[20] Brooks, *Geological Survey*, 30-31; Kennedy, "Opening," 356-357.

[21] Mussey, *Combination,* 55; H. B. Tuttle to Samuel L. Mather, June 25, 1860, "H. B. Tuttle's Letters, 1860," Item 2724, CCI.

[22] Henry R. Mather to Samuel L. Mather, May 18, 1861, Folder 614, Container 70, MS 4578, William Gwinn Mather Family Papers, Western Reserve Historical Society, Cleveland, Ohio (hereafter WGM).

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getting anxious to know whether we belong to the United States or to the Confederate States."[23]

Nonetheless, the war's early uncertainties initially had a debilitating effect on Michigan's nascent iron ore industry. Northern iron manufacturers had partially relied on sales to the unindustrialized South, and uncertainties about that trade and the nation's future led them to reduce output. American pig iron production fell from 821,000 tons in 1860 to 653,000 in 1861.[24] The owner of Ridgway Burton & Co., an eastern Ohio furnace operator, wrote to Samuel Mather of the Cleveland Iron Mining Company (CIMC) in April 1861 that a "fog" surrounded all business, "we really do not know how to move…. We do not want ore, if we do not see anyway [sic] clear to dispose of Iron."[25] Writing from Chicago, William Pearsall, an officer in the Pioneer Iron Company, commented in July 1861, "There is no sale for Iron here at any price for Cash." Cyrus McCormick, he noted, was seriously considering closing down his agricultural implement works for a year to see what would happen.[26]

This uncertainty rippled northward to the Upper Peninsula. M. L. Hewitt, a director of the Cleveland Iron Mining Company living in Marquette, wrote to Samuel Mather, Secretary of the company, two days before South Carolina fired on Ft. Sumter, "Our country seems to be in a distracted state yet no one can tell how it is going to end. No business calculations can be made with any certainty until it is settled." Henry Mather, Sam's brother, wrote a few months later from Marquette, "It is dull-dull—No business, no money. No one buying—no one selling." Shortly after, the *Lake Superior News* commented that "the general stagnation caused by the war" had affected the iron ore trade "severely."[27] Some furnaces in the lower Great Lakes states that had begun to use Lake Superior ores reverted to local ores rather than

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[23] Ibid., November 1, 1861.

[24] Peter Temin, *Iron and Steel in Nineteenth-Century America: An Economic Inquiry* (Cambridge, MA: MIT Press, 1964), 266, 274.

[25] M. L. Hewitt to Samuel L. Mather, April 14, 1861, "Letters rec'd 1861, G-L," Item 2724, CCI; Ridgway Burton & Co. to Mather, April 29, 1861, "Letters rec'd, 1861, M-S," ibid. See also R. Nelson to Mather, June 5, 1861, "Corresp. From Marquette 1860-3," Item 2724, CCI.

[26] William Pearsall to Charles T. Harvey, July 1, 1861, Folder 38, Pioneer Iron Company Papers, MRHC.

[27] Henry R. Mather to Samuel L. Mather, September 2, 1861, Folder 614, Container 70, WGM; "The Iron Ore Trade of Marquette, "*Lake Superior News* (Marquette, MI.), November 1, 1861, Historical Scrapbook, Cliffs Natural Resources historical files, Cleveland, Ohio (hereafter HSB).

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depend on ore shipped hundreds of miles. Michigan iron ore production dropped even more precipitously than U.S. pig iron production in 1861, falling from around 115,000 tons in 1860 to less than 50,000 tons (see Table 1).

Table 1
Michigan Iron Ore Production, 1857-1867

Year	# of Operating Mines	Iron Ore Shipments from Michigan Mines
1857	2	25,646
1858	3	22,876
1859	3	68,832
1860	3	114,401
1861	3	49,909
1862	3	124,169
1863	3	203,055
1864	9	247,059
1865	13	198,758
1866	13	296,713
1867	14	465,504

Source: Number of operating mines compiled from T. B. Brooks, et al., *Geological Survey of Michigan: Upper Peninsula, 1869-1873* (New York: Julius Bien, 1873), 9-43, supplemented by A. P. Swineford, *The Lake Superior Iron District: History of its Mines and Furnaces* (Marquette, MI: Marquette Mining Journal, 1869) and Swineford, *History and Review of the Copper, Iron, Silver, Slate and other Mineral Interests of the South Shore of Lake Superior* (Marquette, MI: The Mining Journal, 1876); for shipments, see Crowell & Murray, Inc., *The Iron Ores of Lake Superior…* (Cleveland: Penton Press Co., 7th ed., 1930), 80.

The outbreak of the war also affected the region in other ways. In August 1861, Henry Mather told his brother, "More than one half of our voting men have already gone [to fight]. We have hardly enough left to take care of the widows." This was an exaggeration, no doubt, but it

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boded poorly for the iron mines, which had traditionally had trouble attracting a labor force to the remote area.[28]

Revival and Expansion

Once it became clear that the Civil War would be protracted, however, orders for war materiel began to pour into the manufactories of the Northern states. Demand for Michigan ore revived. Iron was essential to the war effort, used to produce cannon balls, the steam engines, boilers, and iron cladding for war vessels, new and replacement rails, locomotives, wagon wheels, and a host of other things. The limited, low-grade deposits of local ores on which many Pennsylvania and Ohio furnaces depended soon became inadequate, forcing many to look to Michigan's abundant ore deposits, whose production could be rapidly increased and whose richness and purity improved furnace yields.[29] The owner of the Falcon Iron Works in Niles, Ohio, wrote in July 1862, "We are Suffering for [lack of] Lake Superior Ore" [emphasis in original]. Another furnace owner complained he must have Lake Superior ore soon or blow out his furnace.[30] Reporting on the 1862 shipping season, the *Lake Superior News and Journal* noted that Michigan mines could have exported twice as much iron if they could have produced it.[31] As it was, production in Michigan's ore fields in 1862 rose by more than 250 percent over 1861.

Late in 1862, one of Cleveland's leading ore merchants commented that demand for ore in the coming year would "exceed the capacity of all of the [Michigan] mines to supply."[32] He was right. The 1863 shipping season was "the most remunerative" in the history of Michigan's iron district, despite high freight rates and short, poor quality, and high-priced labor. The *American Mining Gazette* noted that "it was impossible to supply the demand for the ore."[33] Michigan's ore output rose another 60 percent, reaching over 200,000 tons, and even

[28] Henry R. Mather to Samuel L. Mather, Aug. 23, 1861, Folder 614, Container 70, WGM.

[29] "Iron Trade of Lake Superior," *American Mining Gazette* 1 (July 1864): 260.

[30] James Ward & Co. to Cleveland Iron Mining Co., July 18, 1862, "Letters recv'd from J. W. Y. & L except from Tifft, 1862," Item 2724, CCI; J. M. Crawford to Samuel L. Mather, July 11, 1862., "Letters recv'd from A-F, 1862," ibid.

[31] *Lake Superior News and Journal,* January 16, 1863, HSB.

[32] The merchant was H. B. Tuttle; his comments are mentioned in Wm. Gordon to Samuel L. Mather, June 30, 1862, "Letters recv'd from G-L, 1862," Item 2724, CCI.

[33] "Cleveland Iron Mining Company," *American Mining Gazette* 1 (July 1864): 258.

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this amount was insufficient to meet demand, estimated at 100,000 tons higher.[34]

The number of furnaces in the lower Great Lakes states depending on ore exported from the Upper Peninsula continued to grow in 1864. The Cleveland Iron Mining Company reported in May that it had already made sales and contracts for all of the coming season's ore that it could conceivably produce at prices over last year and that demand was "still largely in excess of supply or the ability of all the mines…to furnish."[35] Between 1861 and 1864, Marquette range ore production jumped from 50,000 tons to nearly 250,000 tons. Of course, 1861 was a down year due to the uncertainties surrounding the outbreak of hostilities, but even taking the 1860 figure, Michigan iron mines sent well more than twice as much ore down the Great Lakes in 1864 than they had in 1860.

The three original companies—Jackson, Cleveland, and Lake Superior—initially met the growing demand for ore, but new iron mining ventures soon emerged. In late 1864 the *Lake Superior Mining Journal* claimed 13 new mines had been opened. Not all of these became producers, but by 1865 at least 10 Michigan mines were producing ore, and a dozen others were in the process of being readied.[36] High prices encouraged this expansion. Lake Superior iron ore sold at $5.25 a ton in 1860, but at $8.50 by 1864, and at times it hit as much as $15-16 in Cleveland.[37]

The growth of charcoal-fueled blast furnaces in Michigan's Upper Peninsula paralleled the growth of iron mining. By 1864 Michigan was already producing more pig iron than the traditional eastern iron manufacturing states of Connecticut and Massachusetts.[38] Pig iron exports from the Upper Peninsula grew from 5,660 tons in 1860 to 13,832 in 1864, drawing on the region's mines for lean ores deemed

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[34] American Iron Mining Company, *Prospectus preparatory to the organization of the American Iron Mining & Manufacturing Co.* (New York: Francis Hart & Co., 1864), 3.

[35] Cleveland Iron Mining Company, *Annual Report of the Directors to the Stockholders For the Year Ending May 18, 1864* (Cleveland: Sanford & Hayward, 1864), 4. See also "The Iron Business of Lake Superior," *Scientific American* ns 5 (September 17, 1864): 181 and Cascade Iron Company, *Prospectus of the Cascade Iron Company of Lake Superior* (Philadelphia: W. P. Kildare, 1865), 14.

[36] "Marquette in 1864," *Lake Superior Mining Journal,* December 2, 1864, HSB; Lamborn, "Development of Iron Industry," 644, HSB.

[37] Average price from Crowell & Murray, *Iron Ores of Lake Superior,* 85; for the $15-16 figure, see Cascade Iron Company, *Prospectus,* 14.

[38] Robert H. Lamborn, "Advantages of the Lake Superior Region for Producing Charcoal Iron," *The Merchants' Magazine and Commercial Review* 53 (1865): 414.

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unsuitable for export to the lower Great Lakes, and on the region's abundant hardwood for fuel.

Table 2
Pig Iron Production by Upper Peninsula Blast Furnaces, 1858-1867

Year	# of Blast Furnace Stacks Operated at Least Part Year	Production of Pig Iron in Upper Peninsula Furnaces (in tons)
1858	1	1,627
1859	3	7,258
1860	4	5,600
1861	5	7,970
1862	5	8,590
1863	6	9,313
1864	6	13,382
1865	7	12,283
1866	7	18,437
1867	9	30,911

Source: Number of operative blast furnaces compiled from Brooks, *Geological Survey,* 9-43; pig iron production from A. P. Swineford, *The Lake Superior Iron District: History of its Mines and Furnaces* (Marquette, MI: Marquette Mining Journal, 1869), 34.

Sharply higher prices drove this growth. By 1864 railroad iron was selling for as much as $105 a ton.[39] Charcoal pig iron, after selling at $20 to 25 a ton for some years, hit $45 by October 1863, $55 by November, and $80-90 by the spring of 1864.[40] The Upper Peninsula's accelerated

[39] St. Mary's Canal Mineral Land Co., *Reports upon the Value of the Company's Lands located in the Iron Region of Lake Superior* (Boston: Wright & Potter, 1864), 19.

[40] Peter White, "A Brief Attempt at the History of the Mining Industry of Northern Michigan," *Publications of the Michigan Political Science Association* 3 (January 1899): 148. White was a central figure in the Upper Peninsula's charcoal iron industry for many years.

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production of pig iron came largely from new furnaces built to meet wartime demand. While the first blast furnace on Lake Superior had begun producing in January 1858 and only two operated at the time of the 1860 census, with two more by the end of that year, by 1864 eight stacks were in blast in the region, and by 1868 no fewer than 11.[41]

The growing use of Upper Peninsula iron ore and charcoal iron during the Civil War accelerated the process of tying the region to the remainder of the United States. During the war, a growing number of blast furnaces on the lower Great Lakes became dependent on Lake Superior ore; by one estimate, 50 blast furnaces had been erected by fall 1864 "expressly" to smelt these ores.[42] This dependence on Upper Peninsula ore continued after the war. Likewise, the region's charcoal iron quickly proved itself in the production of those iron goods that required a very pure, high quality casting product, especially railroad wheels and the new Bessemer steel. A number of Chicago-area foundries began to draw heavily on Michigan charcoal iron during the Civil War and continued that dependence into the post-War period.

Transportation

The growing wartime dependence of firms on the lower Great Lakes on Michigan iron ore and charcoal pig, accelerated the growth of transportation systems linking Michigan's iron region to the remainder of the country. Early in the conflict Congress supported construction of a wagon road from the iron fields to the Wisconsin state line and, later, an extension south along the shore of Lake Michigan to Green Bay, Wisconsin. Workers completed these roads in 1862 and 1863, but they marked only the beginning of improved transportation links from Michigan's iron mining region to the remainder of the nation.[43]

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[41] A. P. Swineford, *The Lake Superior Iron District: History of its Mines and Furnaces* (Marquette, MI: Marquette Mining Journal, 1869), 29-30; "Lake Superior Iron Works," *Bulletin of the American Iron & Steel Association* 3 (March 17, 1869): 217.

[42] "Mining News," *Lake Superior Mining Journal,* October 7, 1864, HSB.

[43] William J. Welsh, "Tilting at Windmills: One Man's Search for the American Dream, A Biography of Charles Thompson Harvey" (PhD diss., Bowling Green State University, 1982), 70; Buckman, *Tilden Unmasked,* 30-31; "Writing UP," November 21, 1862, "State Roads in Marquette Co.," April 3, 1863, "Overland Mail," April 15, 1862, and "Good Progress," October 31, 1862, *Lake Superior News and Journal.*

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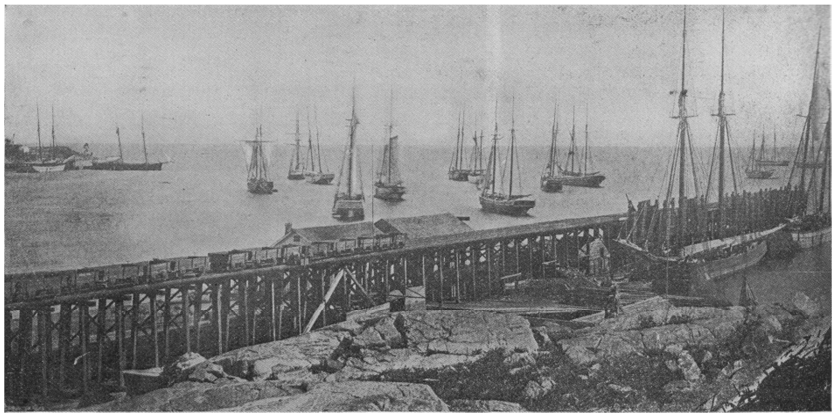

Image 2: One of three major ore loading docks in Marquette Harbor in the early 1860s. By means of chutes at the far end of the dock, dock operators transferred ore from railroad cars to the vessels that carried it to blast furnaces on the lower Great Lakes.

Source: *Iron Trade Review*, March 16, 1911, 548

Far more significant was the growth of water and rail lines. By 1860 a fleet of perhaps 70 vessels engaged in the iron ore trade, hauling ore from Marquette to Cleveland (typically) for transshipment to inland blast furnaces.[44] The wartime growth of iron ore exports pulled additional vessels into the trade and transformed the quiet port of Marquette into a bustling transshipment point.

When Louis Henry Morgan, involved in the region's charcoal iron industry and railways, arrived in Marquette in July 1863, he noted the village's harbor contained "about 40 vessels" waiting to be loaded with ore.[45] Marquette businessman Henry Mather on 15 August that same year observed 50 to 60 vessels.[46] In July 1865, a *Chicago Tribune* reporter found three steamers bringing supplies to and carrying pig iron away

[44] Alexander Campbell, "An Address on the Climate, Soil, Resources, Development, Commerce and Future of the Upper Peninsula of Michigan, delivered in Representative Hall, at Lansing, Feb. 6, 1861," House Doc. 24, Legislature 1861, 15 [Copy: Library of Michigan].

[45] Saul Benison, "Railroads, Land and Iron: A Phase in the Career of Lewis Henry Morgan" (PhD diss., Columbia University, 1953), 215, citing L. H. Morgan, "Journal of a visit to Marquette, Lake Superior July and August 1863," L. H. Morgan Papers, University of Rochester, Rochester, N.Y.

[46] Henry R. Mather to Samuel L. Mather, August 15, 1863, Folder 618, Container 71, WGM.

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from Marquette and fourteen sailing vessels loading ore or waiting their turns to load. A few days later he reported the arrival in one day of seven steamers, nine propellers, and twenty-eight schooners. "The magnitude of the iron trade of Marquette County," he commented, "is little comprehended by the majority of your Chicago readers."[47]

Many of these vessels were specially chartered and not ordinarily engaged in the iron ore trade. But the rapid growth in demand for iron ore led to a significant growth in the fleet of vessels specially dedicated to the Upper Michigan iron ore trade. By 1869 the trade gave employment to over 200 vessels.[48]

The wartime growth of rail service complemented the growing fleet serving the iron region. The demand for ore early threatened to overload the region's only rail link: the Bay de Noquet & Marquette Railroad (BdN&M), a single-track road running from Marquette 12 to 15 miles inland to the mines. To handle the increased wartime ore traffic, the BdN&M improved its track and added three locomotives to the two already in its fleet. It had 17 miles of track in 1860 and acquired three additional miles during the war. The line's high rates and heavy traffic soon attracted rivals. The BdN&M had long talked about building a branch south to Lake Michigan and had plans to expand westward to where new mines were opening, but it was blocked in both directions by new rivals. The rival new railroad to the west—the Marquette and Ontonagon—constructed 20 new miles of track during the war.[49]

The *Trent* Affair provided another stimulus to rail expansion and brought in the rival that blocked BdN&M's planned southern expansion. In November 1861 a U.S. Navy warship stopped a British mail packet, the *Trent,* and forcibly removed two Confederate diplomats. Already strained relations between Britain and America threatened to erupt in warfare by early 1862. The British government dispatched thousands of troops to Canada and shipped large volumes of ordnance to arm Canadian militia units; it also alerted its naval units in the Americas to the possibility of war.[50] Only the St. Mary's River separated

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[47] J. M., "The Lake Superior Region," *Chicago Tribune,* August 3, 1864.

[48] Swineford, *Swineford's History of the Lake Superior Iron District, Its Mines and Furnaces* (Marquette, MI: Mining Journal Office, 1871), 95; J. Disturnell, *The Great Lakes, or Inland Seas of America*… (New York: American News Company, 1868), 119; Charles Lanman, *The Red Book of Michigan*… (Detroit: E. B. Smith & Co., 1871), 108.

[49] John Gaertner, *The Duluth, South Shore & Atlantic Railway: A History of the Lake Superior District's Pioneer Iron Ore Hauler* (Bloomington: Indiana University Press, 2009), 10-15.

[50] Kenneth Bourne, "British Preparations for War with the North, 1861–1862," *The English Historical Review* 76 (1961): 600-632. One of the more recent book-length studies

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British Canada from the canal at Sault Ste. Marie—the only link in 1861 between Michigan's iron ore deposits and the blast furnaces and rolling mills of the lower Great Lakes. The canal was clearly vulnerable, and fear of war with Britain thus provided a critical argument for developing alternative transportation routes to Michigan's Upper Peninsula.[51]

Seeking to exploit the tensions between Britain and the United States, Charles Harvey, Perry Smith, and William Ogden in February 1862 formed the Peninsula Railroad Co. to build a railroad from Marquette south to the Wisconsin line. Most of the line's promoters were from Chicago and hoped to tie the mineral districts of the Upper Peninsula to their city.[52] In successive acts in April and July 1862, Congress granted the new company lands to encourage it to construct the railroad and allowed relocation of the line's southern terminus from the Wisconsin line to Little Bay du Noc on the north shore of Lake Michigan. Supporters of the acts played on fear of war with Great Britain. The wording of the joint resolution authorizing transfer of an old 1856 land grant to the Peninsula Railroad Company and use of a different route than that stipulated in the 1856 land grant explicitly noted that the new railroad was being constructed "with a view of securing a railroad available for military purposes from Green Bay to the waters of Lake Superior." The route change was justified because it would speed up construction.[53]

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of the *Trent* affair is Gordon H. Warren, *Fountain of Discontent: The Trent Affair and Freedom of the Seas* (Boston: Northeastern University Press, 1981).

[51] Besides providing a motivation to construct a new railroad to transport Michigan ore without using the canal at Sault Ste. Marie (discussed below), fear of war with Great Britain was also used to justify construction of a "military road" and telegraph line from Green Bay north to the copper mining district of Michigan's Upper Peninsula. The purpose of this road was to "protect them [the copper mines and people around them] against an anticipated invasion" and to defend the country in case of hostilities with Great Britain. See *Congressional Globe, 37th Congress 2nd Session, 1861-1862,* 2306 (May 23, 1862).

[52] Manufacturers and merchants of Chicago had long been interested in opening Michigan's Upper Peninsula for trade and manufacturing, see *American Railroad Journal,* April 23, 1862, and April 11, 1863, and *Lake Superior News and Journal*, April 10, 1863.

[53] For the joint resolution see "Joint Resolution relative to a Certain Grant of Land for Railroad Purposes made to the State of Michigan in eighteen hundred and fifty-six," 620-621, in George P. Sanger, ed., *The Statutes at Large, Treaties and Proclamations of the United States of America,* v. 12 (December 5, 1859 to March 3, 1863) (Boston: Little Brown & Co., 1863). For the passage of the resolution through Congress see *Congressional Globe, 37th Congress, 2nd session, 1861-62*, 2662 (June 11, 1862), 2819-20 (June 19, 1862), and 3049-50 (July 1, 1862). In the House the resolution was referred to the Select Committee on Lake Defenses instead of the Committee on Public Lands, to which most resolutions involving land grants were referred normally.

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In 1864 the promoters of the new line founded the port of Escanaba, constructed an ore dock, and began to lay rails north toward the iron fields. In December 1864 the Peninsula Railroad reached Negaunee and the iron mines, 62 miles distant from Escanaba. Michigan's iron ore mines now had two outlets. The new line more closely tied Michigan's iron mines to the rest of the Union, for Escanaba, located further south, was free from ice two weeks longer in each fall and spring than Marquette. Moreover, the telegraph line that paralleled the new rail line provided better communications than ever before with the rest of the nation. At the opening of the war in early 1861, Michigan's iron district had been served by roughly 17 miles of rail line; by 1 July 1865, that figure was over 100 miles.

Writing in April 1862, the editor of the *Lake Superior News and Journal* commented, "No longer weather bound during a large portion of the year, we shall consider ourselves [now] intimately connected with and really forming an integral part of the United States."[54] He referred specifically to the arrival of the first overland stage on the newly completed wagon road leading from the mines to the Wisconsin border and to the arrival of telegraph lines and the railroad in Green Bay, Wisconsin. But his comments could apply as well to the overall impact of war-time transportation improvements on the Upper Peninsula's iron region: the region finally became "an integral part of the United States."

Accelerated Profits and Investment

One of the ripple effects of the Civil War was accelerated investment in the region, encouraged by improved transportation and high war-time profits. Before the war Michigan's iron region was practically unknown to Eastern capitalists.[55] As demand for and prices of iron ore rose, the three companies involved in iron ore mining in the Upper Peninsula began to pay dividends significant enough to attract attention. In 1862 the Cleveland Iron Mining Company announced an annual dividend of 10 percent, the first dividend ever paid in the district. By July 1863 the company had distributed $258,000 in dividends on an initial capital investment of $300,000. When CIMC published its 1864 annual report, the *American Mining Gazette* called it "one of the best annual statements that has fallen to our lot to examine for some time past…" Indeed, the *Gazette* noted, CIMC had now returned to

[54] "Overland Mail," *Lake Superior News and Journal,* April 15, 1862.

[55] H. B. Tuttle to Samuel L. Mather, June 25, 1860, "Letters from Marquette Agent, July 11, 1859 to June 16, 1865," Item 2432, MS 86-100, CCI; "Iron Mine Dividends," *Lake Superior News and Journal,* May 8, 1863.

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stockholders in dividends all the capital paid in, and it still had more than $450,000 on hand for further distributions.[56]

The Jackson Iron Company paid its first dividends almost simultaneously with CIMC's in 1862. And like the Cleveland, it made startling profits in subsequent years. In 1863 the Jackson paid out $150,000 in dividends on original capital stock of $300,000. In 1864 the Jackson paid quarterly cash dividends of 25 percent on its original investment. Profits for the year totaled $400,000.[57]

The Lake Superior Iron Company, the other early Michigan iron mining venture, lagged a bit behind the Cleveland and the Jackson, but it paid a small dividend in 1862 and larger ones in 1863 and 1864. In 1864 the company, which had only $250,000 in paid-in capital, had profits of $240,000. By 1865 Lake Superior Iron shareholders, who had paid in only $12.50 a share, had already received $7.50 in dividends.[58]

The early investors in iron ore mining in Michigan profited from more than simply dividends. The value of their shares—originally $25 in all three cases—rose sharply. After the Jackson paid its first dividend, its stock consistently commanded at least five times its par value.[59] Cleveland stock at one point in 1864 sold for six times its original cost. By 1865, it had come down a bit, but it was still valued at between $75 and $100.[60] Louisa M. Mansfield of Middleton, Connecticut, wrote to her brother in early 1864 bemoaning her failure to buy 50 more shares the previous fall when it had been selling at $25 to $30.[61] Lake Superior Iron Co. stock by 1865 sold for as high as $60.[62]

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[56] "Iron Mine Dividends," *Lake Superior News and Journal,* May 8, 1863; Cleveland Iron Mining Company," *American Mining Gazette* 1 (July 1864): 255, 258.

[57] Swineford, *History and Review of the Copper, Iron, Silver, Slate and other Mineral Interests of the South Shore of Lake Superior* (Marquette, MI: The Mining Journal, 1876), 102; "Iron Mine Dividends," *Lake Superior News and Journal,* May 8, 1863. See also Marquette Iron Co., *Prospectus*, 8 and Cascade Iron Company, *Prospectus,* 11.

[58] Handwritten list of dividends in Folder 18 ("Mining"), Box 4, William Austin Burt Papers, MRHC; see also Lake Superior Iron Company, "Annual Report for 1864" [handwritten], Folder 13, Box 3, Burt Papers; "Michigan Iron Company," n.p., [1865], 2-page prospectus [copy at Case Western Reserve Historical Society, Cleveland, Ohio].

[59] Swineford, *History and Review of the Copper, Iron,* 102.

[60] "The Iron Interests of Michigan," *Lake Superior Mining Journal*, June 17, 1864, HSB; "Michigan Iron Company."

[61] Louisa M. Mansfield to Samuel L. Mather, April 25, 1864, Folder 69, Container 71, WGM.

[62] "The Iron Interests of Michigan," *Lake Superior Mining Journal*, June 17, 1864, HSB; "Michigan Iron Company." See also American Iron Mining & Manuf. Co., *Prospectus Preparatory to the Organization of the American Iron Mining & Manufacturing Co.* (New York: Francis Hart & Co., 1864), 3.

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How the Upper Peninsula's charcoal furnaces fared financially is less known, but with charcoal pig selling at record prices, some certainly flourished. The Northern Iron Company, the first U.P. furnace company to declare a dividend, did so in early fall 1864.[63] But more impressive was the Morgan Iron Company. Incorporated in July 1863 with an authorized capital of $50,000, but only $26,000 actually paid in, Morgan's furnace went in blast in November. Within eight months the company had cleared $88,000; within ten months it had paid out dividends equal to 100 percent of its initial capital and had a profit of 220 percent.[64]

Profits such as these attracted new investment. The Detroit Board of Trade, considering not only iron mines but the railroads constructed to serve them and the region's blast furnaces, set the capital investment in the Upper Peninsula iron region at about $1.5 million in 1860. By 1864 the amount invested in the region's iron business had grown to $4 million, an increase of 160 percent in only four years.[65]

The war not only brought changes in the volume of investment but also in the sources of investment. The three original mining companies, as well as the early charcoal-fueled blast furnaces and the local railroad, had been funded mainly by investors from what was then considered the "West," notably Cleveland, Detroit, western Pennsylvania, and western New York (Rochester). The rising prominence of Michigan's iron fields now brought Eastern capital. Iron Cliffs, an important new mining and smelting operation initiated in 1864, was financed largely out of New York, where its headquarters was established. Samuel J. Tilden, the New York politician and capitalist who narrowly missed being elected president in 1876, controlled the New York mine, opened in 1864. The Marquette Mining Company, also organized in 1864, drew heavily on Philadelphia capital.[66] The new L'Anse Mining Company attracted

[63] "Mining News," *Lake Superior Mining Journal*, October 14, 1864, HSB.

[64] Henry R. Mather to Samuel L. Mather, January 17, 1864, Folder 619, Container 71, WGM; Brooks, *Geological Survey,* 35; "Marquette in 1864," *Lake Superior Mining Journal,* December 2, 1864, HSB.

[65] Detroit Board of Trade, *Annual Statements of the Commerce of Detroit, comprising reviews for the years 1859, 1860, 1861, 1862, 1864, 1865, and 1867* ([Detroit]: Detroit Board of Trade, 1868), "1860 Annual Review," 9; "1864 Annual Review," 29.

[66] *Report of the Directors to the Stockholders of the Marquette Mining Co. of Michigan, May 3, 1864* (Philadelphia: [Marquette Mining Company, 1864]), in Marquette Mining Co. Papers, MRHC; Letter Book, Marquette Mining Co.., 1864-1884, MRHC; Minute Book, Marquette Mining Company, MRHC.

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capital from New York and Connecticut.[67] Eastern capital also figured heavily in the region's railways. The Peninsula Railroad, built into the area from Escanaba on Lake Michigan, depended heavily on Eastern capital, since its parent company, the Chicago and North-Western, had gone bankrupt and fallen under the control of New York capitalists.[68]

Mechanization

Besides accelerating production, infrastructure development, and investment, the Civil War also wrought changes in the operation of the mines themselves. In the ante-bellum era, iron mining on the Upper Peninsula resembled quarrying more than the popular conception of mining, with shafts and underground tunnels. The early mining companies exploited rich outcrops of ore on several of the region's large hills. They simply drilled into these deposits and set off explosions, blasting the rock down. Largely above ground, or above the water table, these mines needed no steam-powered pumps or hoists.

The expanded demand for ore during the war began to change this situation. By 1864 the easy-to-mine hill-side deposits had vanished. Mining operations followed deposits below ground. The Lake Superior mine introduced steam-powered machinery for hoisting and pumping in 1864. It also purchased a steam-powered mechanical drill.[69] The Jackson mine's management, with its mine also going "considerable depths below the surface level," decided in 1864 to use steam-powered machinery to reopen and work two of its mine pits at a lower level, and the company's president noted that the decision should have been made a year earlier.[70] The Cleveland mine's no. 3 pit had been compelled to go "under rock" following an inclined ore deposit by mid-1863. In April 1864 runoff from melting snow forced abandonment of work at the bottom of the pit. Recognizing that continuation of mining required mechanization, Cleveland Iron purchased its first steam pumping engine in 1865, using it also as a hoist by the end of the year.[71]

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[67] *L'Anse Mining Company, Lake Superior, Michigan, 1864* (New York: Howe & Ferry, 1864), 2-3.

[68] Benison, "Railroads, Land and Iron," 244, 301, 317.

[69] Lake Superior Iron Company, "Annual Report for 1864." A December 31, 1864, inventory indicates the company possessed a drill sleigh and cart, a steam drill with fixtures, and a steam pump ("December 31, 1864 Inventory No. 1 Lake Superior Iron Mine," Folder 13, Box 3, Burt Papers).

[70] Jackson Iron Company, *Report, 1st June 1866*, 6 [copy Library of Michigan].

[71] William Ferguson to Samuel L. Mather, April 19, 1864, Item 2432, CCI; Samuel L. Mather to Jay C. Morse, September 14 and 20, October 28, 1865, item 2779, CCI;

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The mechanization of iron mining initiated during the Civil War steadily expanded in the post-War period. By 1870 ten of the thirteen mines operating in the area were using steam power for hoisting and pumping.[72] This growing dependence on steam power was encouraged in part by increasing mine depths and the mushrooming demand for ore. The war also created labor shortages and drove up the price of labor, providing additional factors that encouraged mechanization.[73]

The Labor Issue

The expanded wartime output of ore was primarily due to increases in the labor force; mechanization came too late and was too limited to have a significant impact during the war years. This dependence on man power made a pre-existing problem – shortage of labor – much worse. Michigan's iron mines had long been plagued by labor shortages due to their location far from settled areas. As a result, the early mining companies were compelled to get into the community-building business – adding to already high development expenses. They had to build boarding houses and dwellings to house the labor they enticed to the region and to operate stores to provide that labor with the necessities of life.[74] The early mining companies also paid – compared to mining companies in other regions – relatively high wages to make up for the high cost of living in an area where almost everything, including foodstuffs, had to be imported. In 1860 wages were running $1.12 to $1.25 cents per day in the shipping season, and slightly under $1 during the winter months.[75]

"The Iron Business of Marquette for 1865," *Lake Superior Mining Journal,* December 8, 1865, HSB.

[72] T. B. Brooks, "The Method and Cost of Mining the Red Specular and Magnetic Ores of the Marquette Iron Region of Lake Superior," *Transactions of the American Institute of Mining Engineers* 1 (1871-1873): 198.

[73] Writing about 1870, T. B. Brooks, *Geological Survey,* 266, commented that the high cost of labor for drilling and breaking ore made a good power drill and the use of nitroglycerine very attractive to Michigan iron mine owners.

[74] Reynolds, "'We were satisfied with it,'" *Michigan History Magazine* 78.6 (November-December 1994): 24-32, provides an overview of corporate paternalism on the Michigan iron ranges from c1845 to c1945.

[75] For summer wages see H. B. Tuttle to Samuel L. Mather, "H. B. Tuttle's Letters, 1860," Item 2724, CCI; for winter wages see R. Nelson to Wm. Gordon, September 15, 1861, "Correspondence from Marquette 1860-63," Item 2724, CCI. See also "A Protest from the laboring Man," *Lake Superior News and Journal,* March 14, 1860. In 1870, when iron miners in Michigan were receiving above $2 a day, miners in Sweden were receiving $0.48 to 0.75 a day; see Brooks, *Geological Survey,* 251, 257, 266.

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The first impact the war had on labor was to eat into the already-thin available labor supply. Robert Nelson, then agent for Cleveland Iron, noted in the fall of 1861 that, even though it had initially looked like the company would have all the men it wanted, "things looks [sic] different now." With demand for ore growing, the region needed twice as many men. Nelson indicated his mine had only two-thirds of the men it needed. Making matters worse, the Upper Peninsula's copper mines, 100 miles to the northwest, also faced labor shortages and had begun recruiting men from the iron mines, quickly forcing wages up. In mid-October 1861 Nelson complained that men kept "going to Portage," that is, to the copper mining region. In early 1862 he reported that Portage Lake had "drained us of men."[76]

Conscription made matters even more difficult. By 1862 Federal officials had awakened to the reality that a draft might be necessary, since sufficient volunteers to fill the depleted ranks of the Union armies had not been forthcoming. Congress' initial response was the Federal Militia Act of 1862, which authorized the President to draft for up to nine months sufficient numbers from state militias into national service *if* a state did not meet its quota of volunteers. Since state militias consisted, theoretically, of all able-bodied men between the ages of 18 and 45, state and local officials hurriedly began to compile lists of men who theoretically composed their militias. They quickly encountered resistance. Potential enrollees hid or refused to give their ages. The act encountered especially severe resistance in the Irish and German immigrant communities, which felt no commitment to the conflict.[77]

The nature of the work force in the Upper Peninsula iron mines insured that the Federal Militia Act of 1862 would cause problems, since it was heavily immigrant, mainly Irish and French Canadian, but with a sprinkling of Germans and other nationalities.[78] Some of these panicked at rumors that Michigan might not meet its quota and a draft might be impending. One local mine agent noted in August 1862 that "men is leaving [sic] by the dozen fearing they will be drafted to fight, some

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[76] R. Nelson to Samuel L. Mather, September 15, 1861, "Letters from Marquette Agent, July 11, 1859 to June 16, 1865," Item 2432, CCI; Nelson to Wm. S. Gordon, September 15, 1861, ibid.; Nelson to Mather, October 15, 1861; and Nelson to Mather, March 5, 1862, ibid.

[77] See James W. Geary, *We Need Men: The Union Draft in the Civil War* (DeKalb: Northern Illinois University Press, 1991) and Eugene C. Murdock, *Patriotism Limited 1862-1865: The Civil War Draft & Bounty System* (Kent, OH: Kent State University Press, 1967). Michigan's military manpower story is told in John Robertson, *Michigan in the War* (Lansing: W. S. George & Co., 1882).

[78] J. M., "The Lake Superior Region," *Chicago Tribune*, August 3, 1864.

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going to Wisconsin" (perhaps because that state had met its quota of volunteers and they would be safe from the draft there). Others headed for Canada. In early September the Cleveland mine's agent, Nelson, commented that he was unable to load a pound of ore at the mine, even though he had plenty at track side, because he had insufficient men.[79] The depopulation of Marquette County due to "the terror of the draft" was serious enough – and the continued operation of the mines had become important enough – that Michigan's governor Austin Blair in October 1862 exempted Marquette County from conscription.[80]

In 1863 Congress passed a more comprehensive conscription act. William Ferguson, the Cleveland mine's new superintendent, wrote to company secretary Samuel Mather, "They are about to commence working preparatory to a draft and I fear many of our men will be frightened off." Local businessman Peter White reported the same, warning that men might be frightened away by the Provost Marshall going around because "a great many are terribly fearful of a draft." At about the same time, the local paper complained that "so many craven cowardly wretches" had fled to Canada to avoid the draft that Canada now had a surplus of labor. The fears of Ferguson and White proved valid. In August Henry Mather wrote to his brother Samuel in Cleveland, "men in the mines are scarce."[81]

Upper Michigan iron mining companies tried a variety of tactics to lure and retain the expanded labor force they needed during the war years. They participated with Upper Peninsula copper mining companies in funding the Office of Mining Emigrant Aid Association of Lake Superior to get men from Lower Canada and to encourage immigration from Scandinavia, especially Sweden. The Association claimed it was responsible for over 500 men moving to the region.[82] The men recruited by the Mining Emigrant Aid Association had to be shared with Upper

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[79] R. Nelson to Samuel L. Mather, August 11 and 12, 1862, "Letters from Marquette Agent, July 11, 1859 to June 16, 1865," Item 2432, CCI.

[80] "No Draft on this Lake," *Lake Superior News and Journal,* October 31, 1862.

[81] William Ferguson to Samuel L. Mather, June 28, 1863, Item 2432, CCI; Peter White to Mather, June 26, 1863, Letterbook July 29, 1861-August 12, 1863, Box 26, Peter White Papers, Bentley Historical Library, Ann Arbor, MI [hereafter PWP].; White to Mather, June 26, 1863, "Correspondence from Marquette, 1860-3," Item 2724, CCI; "The Labor Question," *Lake Superior News and Journal,* April 17, 1863; Henry R. Mather to Samuel L. Mather, August 15, 1863, Folder 618, Container 71, WGM.

[82] Wm. Hart Smith to W. J. Gordon, June 29, 1863, "Letters recv'd M-S 1863," Item 2724, CCI; W. Hart Smith to Samuel L. Mather, March 27, 1863," ibid.; Hart to Gordon, March 20, 1863, ibid., indicates that the Jackson and Lake Superior iron companies had responded with funds.

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Peninsula copper mines, and the supply proved insufficient. Thus at least one of the iron mining companies directly recruited abroad. William Ferguson was Canadian, and several times in 1863 and 1864 he returned to his homeland to recruit labor, with some success. For instance in April 1863 he returned with 37 men.[83]

Home-office recruiting supplemented the efforts of the Emigrant Aid Association and mine superintendents with ties abroad. On multiple occasions CIMC's Secretary-Treasurer paid the fares of men from Cleveland to Marquette. In May 1863, for instance, Mather sent 12 men up by steamship. Within a week only eight remained at work. Of another lot, none showed up at the mines. Peter White told Mather that of 33 men he [Mather] had sent up with an escort, only two remained at work, and that of all the men for whom Mather had paid transportation, only seven remained. Making matters worse, none of those sent north knew anything about mining. Nelson, the company's Marquette shipping and business agent, told Mather that he should quit wasting money on fares.[84]

The wartime demand for iron ore peaked in the summer of 1864. CIMC officials asked their agents on the Upper Peninsula to double the previous year's product if possible.[85] The Lake Superior Iron Company neglected exploration to meet the "urgent" demand for ore and because its supply of labor was scanty.[86]

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[83]See Entries for January 1864 and August 1864, Blotter Book 1861-1865, Item 1802, CCI, indicating travel to Canada by Ferguson. See also Ferguson to Samuel L. Mather, May 17, 19, and June 21, 1863, "Letters from Marquette Agent, July 11, 1859 to June 16, 1865," Item 2432, CCI; M. H. Hewitt to Mather, March 31, 1863, "Letters recv'd A-F, 1863," ibid.; *Lake Superior Journal*, April 24, 1863. Agents from Michigan's copper mining region also sought to recruit Canadian labor, see Efstathios I. Pappas, "Swedetown Location: Hope and Failure in a Company Neighborhood" (MS diss., Michigan Technological University, 2002), 11-12. Pappas on pp. 15-37 discusses broader attempts by the copper mines to import Scandinavian labor.

[84] Ferguson to Mather, May 31 and June 5, 1863, "Letters from Marquette Agent, July 11, 1859 to June 16, 1865," item 2432, CCI. See also White to Mather, June 26, 1863, "Corresp from Mqt 1860-3," item 2724, CCI; White to Mather, June 26, 1863, "1861-1863 letterbook," PWP; R. Nelson to Mather, May 4 and June 9 and 27, 1862, "Letters from Marq Agent, July 11, 1859 to June 16, 1865," item 2432, CCI.

[85] Wm. Ferguson to Samuel L. Mather, March 10 1864, Item 2432, MS 86-100, CCI.

[86] Lake Superior Iron Company, "Annual Report, 1864." See also "Iron District," *Lake Superior Mining Journal,* November 18, 1864, HSB, which indicates other mines also neglected exploration in an attempt to increase shipments.

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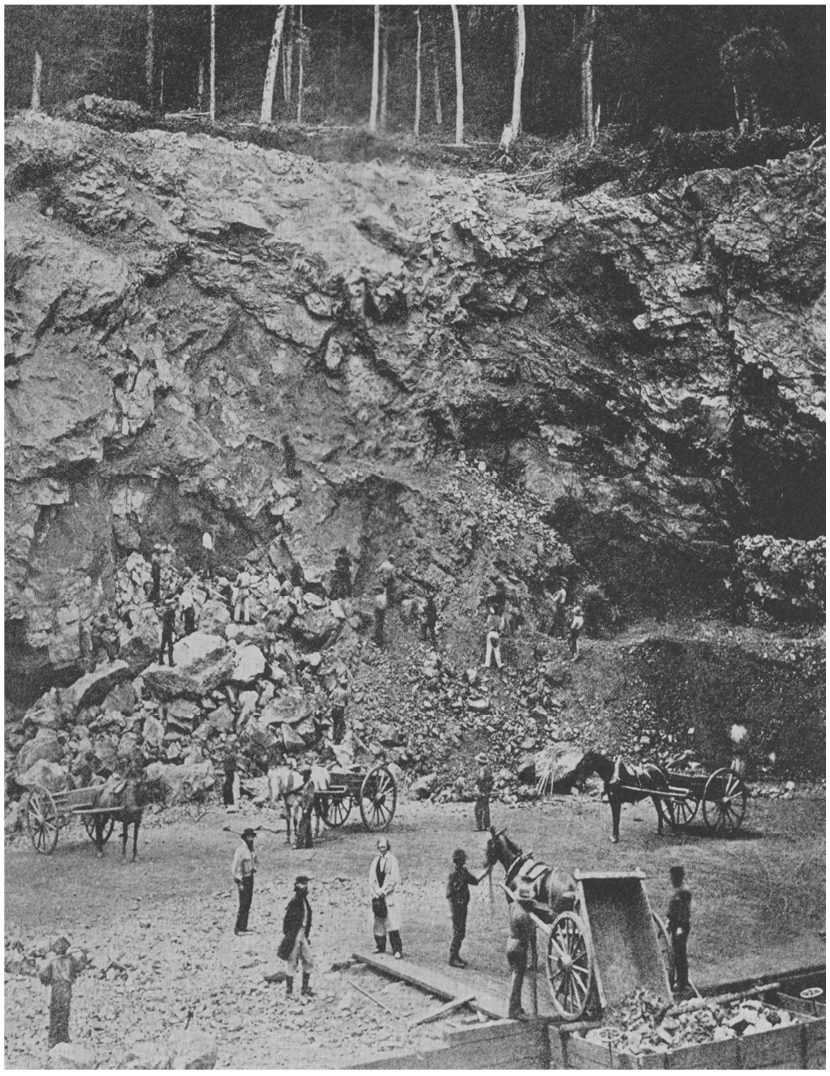

Image 3: The pit of the Jackson Mine in 1860. The Jackson, like all Michigan iron ore mines in the early 1860s, was worked much like a quarry. Miners blasted ore down from the hillside and loaded it into carts. Horses pulled the loaded carts to railroad cars (as at lower right) for transportation to the ore docks at Marquette on Lake Superior.

Source: *Cleveland Cliffs Iron Company…1850-1920* (Cleveland, Ohio: Cleveland-Cliffs Iron Co., 1920), 10

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Apparently aware that the leading mining companies were paying large dividends and were anxious to produce as much ore as possible at high wartime prices, the iron miners struck in June 1864, asking for an increase in wages and a 10-hour day for five days, with an 8-hour day on Saturday, instead of the six, 11-hour days they had been working. After forcibly shutting down the mines, the strikers marched on Marquette and prevented vessels there from loading ore. CIMC officials quickly took ship to Detroit to request that Michigan's governor Austin Blair dispatch troops to quell the strike. Blair had no state troops available and requested that Secretary of War Edward Stanton send federal troops instead. In response, Stanton authorized dispatch of 56 federal troops and arms and ammunition sufficient to arm 100 additional men on site. Federal officials also dispatched the federal gunboat *U.S.S. Michigan*. The *Michigan* conducted artillery practice in Marquette harbor, undoubtedly to intimidate the strikers, and the troops arrested the strike's leaders for inciting riot and forcibly preventing those who wished to work from carrying out their tasks. While previous strikes had attracted no attention outside of the immediate area, this strike received wider press coverage, especially in Chicago. Meanwhile, anxious to resume production at lucrative wartime prices, the mining companies conceded most of the miners' demands. Wages, which had stood at around $1 a day at the start of the conflict and had risen only slowly, now jumped to $2.75 to $3.00.[87] Even this was not sufficient to stem the labor shortfall. In November 1864 the Lake Superior mine had fewer than 100 men at work, while early in the season it had had more than 200.[88]

The post-strike actions of the mine operators illustrate the depth of their need for labor. Although officials arrested "quite a number" as a result of the strike, little came of the arrests. Mine agents and merchants

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[87] For information on the 1864 strike see "Riot at the Iron Mines," *Chicago Tribune,* May 29, 1864; *Annual Report of the Adjutant General of Michigan for the year 1864* (Lansing: John A. Kerr & Co., 1865), 210-213; Henry R. Mather to Samuel L. Mather, May 24, June 9, June 11, 1864, Folder 620, Container 71, WGM; White to Mather, March 31, 1865, "Letterbook, Nov 10, 1864 to April 6, 1867," PWP; "Strike at Marquette," *Portage Lake Mining Gazette* (Houghton, MI)*,* May 28, 1864, and August 13, 1864; "Marine Matters at Detroit," *Chicago Tribune,* June 4, 1864. See also "The Strike of the Iron Miners," *Chicago Tribune,* July 20, 1865 [which reviews briefly the strike of the previous year]; William Ferguson to Samuel L. Mather, May 16, 17 (riotous), 19, 20, 1864, item 2432, CCI; and Henry d'Aligny to Horatio Bigelow, May 30, 1864, "Letters & Reports to Land Agent," Box 2, St. Mary's Canal Mineral Land Co. Collection, Michigan Tech Archives and Copper Country Historical Collections, Houghton, Michigan. The 1864 strike is also mentioned in passing in Bradley A. Rodgers*, Guardian of the Great Lakes: The U. S. Paddle Frigate Michigan* (Ann Arbor: University of Michigan Press, 1996), 26, 97.

[88] "Iron District," *Lake Superior Mining Journal*, November 11, 1864, HSB.

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proved unwilling to testify and, as a result, those arrested were soon released. "Every one [sic] is trying to clear their own men," Henry Mather complained, because the mine agents hoped to get them back on the job. As a result, "the whole thing is resulting in a farce."[89]

The shorter working hours resulting from the strike limited production increases. In addition, the strike disorganized the mines. Many miners left the area during the disorders. The men who replaced them were inexperienced. "Hardly one of them understands drilling," the Cleveland mine's agent grumbled. He noted that after the strike men were restless; many quit and did not return or returned only after a bout of hard drinking. Making matters worse, the limited labor supply had to be shared with newly opening mines and new rail construction.[90] Henry Mather speculated in September 1864 that "four or five hundred more men could find employment here immediately." The secretary of the Lake Superior Iron Company commented on the "great deficiency & intractability of laborers, by which we have been embarrassed." But at least the draft in 1864 did not make matters worse. By September 1864, sufficient regional men had enlisted that the county met its quota under the new federal conscription law and was clear of the draft.[91]

The war's end sharply reduced the demand for iron and iron ore. In late April 1865, after Lee's surrender, Samuel Mather of Cleveland Iron reported that he had not sold or contracted for a single pound of ore, and that the previous year's demand and high prices could not be sustained. Several weeks later he noted that the iron trade "looks dull for the season." He instructed the company's new U.P. agent Jay Morse to cut all unnecessary expenses and slow down mining.[92] On 1 July the leading iron ore companies of the Upper Peninsula, faced with declining demand, cut wages.

The miners' response was quick. They struck again and, likely joined by those recently laid off, marched toward Marquette, threatening to loot groceries, stores, and taverns. The chance arrival of the *U.S.S.*

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[89] Henry R. Mather to Samuel L. Mather, June 9, 1864, Folder 620, Container. 71, WGM.

[90] Wm. Ferguson to Samuel L. Mather, May 25, June 1, June 19, Sept. 14, Sept. 16, Oct. 24, Nov. 6, 1864, Item 2432, CCI. With the higher wages, the labor shortage momentarily cleared. In June 1864, the Cleveland mine's superintendent reportedly was getting "all the men he wants" (Henry R. Mather to Samuel L. Mather, June 20, 1864, Folder 620, Container 71, WGM).

[91] Henry R. Mather to Samuel L. Mather, September 3 and 7, 1864, folder 620, container 71, WGM; Lake Superior Iron Company, "Annual Report for 1864."

[92] Samuel L. Mather to Jay C. Morse, April 27, May 8 and 15, 1865, "Letter Book, 1862-1870, not filed," item 2770, CCI.

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Michigan and its commander's decision to load artillery on rail cars and rush his sailors toward the mines ended the threat temporarily. When the *Michigan* departed, the strike resumed. Miners blocked ore traffic from the rails leading to Marquette, cut telegraph lines, and armed themselves with clubs, forcibly stopping all work at the mines. The *Michigan* soon returned, but found its rail-mounted artillery blocked on the rail lines. Its commander wired for reinforcements, which were sent from Chicago by train to Green Bay, then by water to Escanaba, and then by rail over the new Peninsula Railroad to Negaunee in the mining district. By 23 July, the rail line had been cleared to Marquette, ending the affair.[93]

The July 1865 strike provided an apt aftermath to the district's wartime experience, for the readiness with which federal officials intervened in that labor dispute and the attention the strike received in out-of-state newspapers—especially Chicago papers—vividly reflected the region's new-found importance. Ominously, it also served as a forewarning that, in the post-war era, state and federal officials would be willing to use military force to suppress labor disturbances.

The Aftermath

Most recent literature dealing with whether the Civil War accelerated industrial development in the North concludes that the war's direct economic impact was quite limited.[94] But some scholars concede

[93] For material on the 1865 strike see Rodgers, *Guardian of the Great Lakes*, 93-105; "The Strike of the Iron Miners," *Chicago Tribune,* July 20, 1865; F. A. Roe, "The United States Steamer *Michigan* and the Lake Frontier During the War of the Rebellion," *The United Service, A Monthly Review of Military and Naval Affairs* 6 (December 1891): 544-551 (Roe was commander of the *Michigan* in 1865); "The Strike at Marquette," *Portage Lake Mining Gazette,* July 15, 1865, and "Marquette Matters," ibid., July 29, 1865; Frank P. Mills to J. C. Morse, July 11, 12, 15, 17, 1865, Item 2770, CCI; "The Strike of the Miners," *Cleveland Leader,* July 24, 1865; "Another Railroad Strike," *New York Times,* July 14, 1865.

[94] Some examples of the literature on the impact (or lack thereof) of the Civil War on American industrial development are Ralph Andreano, ed., *The Economic Impact of the American Civil War* (Cambridge, MA Schenkman Pub. Co., 1962); Harry N. Scheiber, "Economic Change in the Civil War Era: An Analysis of Recent Studies," *Civil War History* 11 (1965): 396-411; Walter Licht, *Industrializing America: The Nineteenth Century* (Baltimore: Johns Hopkins University Press, 1995), 79-101; and Phillip Shaw Paludan, "What Did the Winners Win? The Social and Economic History of the North during the Civil War," in James M. McPherson & William J. Cooper, Jr., eds., *Writing the Civil War: The Quest to Understand* (Columbia: University of South Carolina Press, 1998), 174-200.

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that the war stimulated certain areas of the economy.[95] Michigan's iron ore industry certainly falls into this second category. The industry was small and obscure going into the Civil War. In 1860 only three or four percent of American iron and steel was made from Michigan ore; by 1865 the figure was at least 12 percent and rapidly rising.[96]

Writing in 1864, an anonymous author summed up the impact the war had had on Michigan's iron ore industry, "The iron interests on Lake Superior have, within a period of six years, reached a basis of maturity that its most sanguine friends did not expect in twenty years."[97] In brief, the Civil War accelerated the development of the district by years.[98] Wartime ore use confirmed and expanded early experiments indicating that Lake Superior ore could be economically mixed with the leaner native ores of Ohio and western Pennsylvania, where coal was abundant and cheap. Simultaneously, wartime production pressures led to a rapid expansion in the number of blast furnaces designed for and dedicated solely to the use of Lake Superior ores. These furnaces were erected near the bulk transportation routes that brought Lake Superior ores south rather than near local ore deposits.

The editor of the iron region's leading paper, the *Lake Superior News and Journal,* jubilantly declared in 1864, "The day is forever past when iron manufacturers, east of the Alleghenies, will furnish the West with iron. They have ceased to do so." The chief reason, as he saw it, was the torrent of high quality ore flowing down the Great Lakes from Michigan's Upper Peninsula to blast furnaces in the rich bituminous coal fields of western Pennsylvania, West Virginia, and Ohio.[99] By 1865

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[95] For instance, see Russell F. Weigley, *A Great Civil War: A Military and Political History, 1861-1865* (Bloomington: Indiana University Press, 2000), 304, which notes the war's positive impact on the industrialization of shoemaking.

[96] Lamborn, "Development of Iron Industry," 642, 644; Foster, *Geology and Metallurgy,* 92, 94; Daddow and Bannin, *Coal, Iron, and Oil,* 548. Lanman, *Red Book of Michigan,* 108, indicates by 1870 the figure was 20 percent.

[97] *L'Anse Mining Company,* 5.

[98] For example, between 1860 and 1870 the population of Marquette County increased by 433%, while the populations of Upper Peninsula counties outside the iron and copper mining areas (like Chippewa, Delta, and Mackinac) saw changes of only 5%, 117%, and -11% respectively.

[99] "The Iron Interests of Michigan," *Lake Superior Mining Journal,* June 17, 1864, HSB; Swineford, *Swineford's History of the Lake Superior Iron District,* 97. See also *Annual Statements of the Commerce of Detroit,* "1862 Annual Review," (1863), 30. *American Journal of Mining,* May 19, 1866, noted that Pittsburgh used ores from Michigan's Marquette range to produce its highest quality iron and steel and that the furnaces and rolling mills of the Mahoning Valley of eastern Ohio had sprung up as a result of the discovery of those ores. See also *Bulletin of the American Iron and Steel Association* 7 (October 29, 1873): 475, and "Iron Ores of Lake Superior," *Chicago Tribune,* February 23, 1864.

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Michigan's iron ore had become, according to S. P. Ely of the Lake Superior Iron Company, "the staple consumption of all the furnaces situated on the great bituminous coal fields in Eastern Ohio and Western Pennsylvania."[100] As an early (1873) historian of the region commented, the war gave Michigan's iron mining district "an outlook of prosperity, which it had not heretofore experienced, enabling its mining and iron manufacturing companies to assume a basis of more successful operation, and confidently to push forward their improvements."[101]

The close wartime commercial ties developed between Michigan's iron ore producers and a large number of blast furnaces in the bituminous coal belt insured the uninterrupted, rapid growth of Michigan's iron ore industry even after the cessation of hostilities. By 1873, when the panic of that year momentarily slowed expansion, Michigan's Marquette iron region boasted over 50 mines and 19 furnaces, which produced nearly 1.2 million tons of ore and 71.5 thousand tons of pig iron.[102] By 1880 Michigan ore was producing over a third of American pig iron, and, by some measures, Michigan had become the nation's leading iron ore producing state.[103] For twenty years in the late nineteenth century, Michigan held that title. While it lost that position to Minnesota after 1900, it remained the nation's second leading iron ore producing state, a position it has held until present.[104]

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[100] Letter from S. P. Ely, January 17, 1865, printed in "Michigan Iron Company." See also "The Beginning," *Lake Superior News and Journal,* May 15, 1863; *American Journal of Mining,* May 19, 1866, citing J. A. Blake of the *Pittsburgh Oil News;* Brooks, *Geological Survey,* 34; "The Geology of Michigan," *American Mining Gazette* 3 (May 1866): 228; "Iron Manufacture in Cleveland," *Lake Superior News and Journal,* April 10, 1863; and Kennedy, "Opening Lake Superior Iron Ore Region," 362.

[101] Data on number of mines and furnaces compiled from Brooks, *Geological Survey,* 14-42, quote from 34. *Memoirs of the American Bureau of Mines* ([Troy, NY]: American Bureau of Mines, [1867]), 10, indicates that by 1867 a total of 15 new mines had been added to the original three and that the number of blast furnaces in the region had doubled.

[102] Peter White, "Sketch of the Upper Peninsula of Michigan," delivered at a joint meeting of the legislature at Lansing, MI, February 1875, 12, in Peter White manuscripts, MRHC.

[103] William T. Hogan, *Economic History of the Iron and Steel Industry in the United States, v. 1* (Lexington, MA: Lexington Books, 1971), 20.

[104]For historical iron ore production figures by state see *Lake Superior Iron Ores, 1952* (Cleveland: Lake Superior Iron Ore Association, 1952); the period from 1965 to 1990 is covered in USGS, "Iron Ore Statistical Compendium," Table 3, "Shipments of Usable Iron Ore from Mines in the United States by State," http://minerals.er.usgs.gov/minerals/pubs/commodity/iron_ore/stat/tbl3.txt, accessed February 1, 2013. For recent production figures see United State Geological Survey, *2011 Mineral Yearbook: Iron Ore* (Washington, DC: US Geological Survey, 2013), 398.

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